METHOD FOR FORMING ANISOTROPHIC METAL PARTICLES

ABSTRACT OF THE DISCLOSURE

A method for forming dendritic metal powders, comprising the steps of: (1) heating a powder comprising non-dendritic particles, under conditions suitable for initial stage sintering, to form a lightly sintered material; and (2) breaking the lightly sintered material to form a powder comprising dendritic particles. In one embodiment, the lightly sintered material is broken by brushing the material through a screen.

Another aspect of the present invention comprises the dendritic particles that are produced by the method described above. These particles can comprise any suitable metal, such as transition metals, rare earth metals, main group metals or metalloids or an alloy of two or more such metals. The particles can also comprise a ceramic material, such as a metal oxide. These particles are characterized by a dendritic, highly anisotropic, morphology arising from the fusion of substantially non-dendritic particles, and by a low apparent density relative to the substantially non-dendritic starting material. The present dendritic particles can be of high purity, and substantially free of carbon contamination.